

"Filterable Viruses," Nauka I Zhian', No. 11, 1949.  
Corr-Mbr. of the USSR Acad. Sci; Laureate of the Stalin Prize; also Professor, -cl949-.

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKOY, V. L.

Ryzhkov, V. L. and Tarasevich, L. M. "On the Action of Strong Sodium Nucleate Solutions on the Virus of Tobacco Mosaic Disease and Albumin," 1950.

SO: SIRA-Si-90-53, 15 DEC. 1953

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
RYZHKO APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

"An Attempt at the Classification of Viruses", Voprosy Med. Virusologii (Problems of Medical Virusology), Issue 3, pp 9-19, 1950.

*11D*

Action of dyes on the virus nucleoprotein of tobacco mosaic disease. V. I. Rytkun, V. A. Smirnova, and O. S. Gurovskaya (Microbiol. Inst., Acad. Sci., Moscow). Biokhimiya 15, 222 (1950).—The effect of various dyes on the virus was tested by adding to the diseased plant juice 0.25% of the dye. After 3 hrs. interaction, the virus titer (on leaves of *Nicotiana glutinosa*) was detd. in the initial juice and after reaction with the dyes. Dyes which inactivated 95-99% of the original virus strength were basic fuchsin, malachite green, brilliant green, gentian violet, nile blue sulfite, methylene violet, neutral red, safranin, and erythrosin. Orange G and naphthol yellow were practically inactive. Basic dyes (safranin, basic fuchsin) as a rule formed ppts. with the virus. Exceptions were methylene blue and nile blue sulfite. Acid dyes without exception formed no ppts. with the virus. Erythrosin was the only acid dye with powerful antivirus activity. Basic dyes were more active in an alk. medium and acid dyes in an acid medium. Thus, methylene blue inactivated 96% of the virus at pH 8, and only 68% at pH

3.8; for acid fuchsin the values were 88 and 55%, resp. After dialysis of the complexes of the virus with basic fuchsin, safranin, and erythrosin, the activity of the virus was completely restored. The amt. of dye combined with the virus depended on the pH. No ppts. were formed at a pH lower than the isoelec. point of the virus. The curves showing the combination of the dye with the virus nucleoproteins at various pH values were similar to the curves of the union of dyes with egg albumin, but differed sharply from the curve given by yeast nucleic acid. H. P.

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RYZHKO<sup>V</sup>, V. L.

RYZHKO<sup>V</sup>, V. L. "Study of Tobacco Mosaic Disease in the U.S.S.R. from D. I. Ivanovskii's Time up to Our Days," Mikrobiologija, vol. 19, no. 6, 1950, pp. 489-498.  
448.3 M582

SO: SIRA SI-90-53, 15 Dec. 1953

CA

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Forms of phosphorus in leaves of healthy, mosaic-infected, and starving tobacco plants. V. I. Ryzhkov and O. S. Gorodskaya. *Doklady Akad. Nauk SSSR*, 70, 105-8 (1950).—In starving plants mineralization of P takes place and ribosenucleic acid is consumed. Mosaic infection and accumulation of the virus nucleoprotein do not cause a regular increase of P in the nucleoprotein and nucleic acid fractions and individual variations are so great that no deductions are possible. The N/P ratio in the alk. fraction of mosaic-infected plants is higher than in healthy leaves, i.e. the infected leaves are poorer in P. G. M. Kosolapoff

*Review of Applied Microscopy*

Ruzhkov (V. L.). Электронная микроскопия доклеточных форм жизни. [Electron microscopy of the precellular forms of life.]—Природа [Nature], (1951), 9, pp. 48-52, 4 figs., 1 diag., 1951.

Electron microscope examinations [R.A.M., 30, p. 280], carried out in the U.S.S.R., of various plant viruses showed the particles of southern bean mosaic [ibid., 31, p. 218], tobacco necrosis [loc. cit.], tomato bushy stunt [ibid., 30, pp. 306, 367], and pumpkin mosaic [ibid., 31, p. 166] to be spherical and 25 to 30 m $\mu$  in diameter, and bean streak [ibid., 28, p. 44] and turnip mosaic [ibid., 30, p. 297]

viruses to be 17 to 19 m $\mu$  in diameter. Cauliflower mosaic [ibid., 31, p. 169], tobacco mosaic [ibid., 31, p. 212], cucumber mosaic [ibid., 31, p. 169], cabbage black ring [loc. cit.], pea streak [ibid., 26, p. 1], and orchid mosaic [ibid., 30, p. 610] viruses were all found to be rod-shaped, 15 m $\mu$  in diameter and 150 to 300 m $\mu$  long. These rods were often joined into long threads up to several thousand m $\mu$  in length. Some constituents of potato yellow dwarf virus [ibid., 30, p. 535] were also rod-shaped and measured 200 by 5 m $\mu$ .

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RYZHKOV, V. L.

USSR/Medicine - Virusology

Sep 51

"Electron Microscopy of Pre-Cellular Forms of Life,"  
V. L. Ryzhkov, Corr Mem, Acad Sci USSR

"Priroda" No 9, pp 48-52

Gives general review of subject, citing numerous data on viruses and bacteriophages. Shows table listing particle sizes of filterable viruses<sup>1</sup> starting with the largest (pneumonia of cats) and ending with the smallest (granulosis of insects). Mentions exptl data indicating that viruses of tomato bushing disease and encephalomyelitis

211T78

CIA-RDP86-00513R001446520017-1  
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propagate by a sort of division. States that electron microscopy will aid in solving problems connected with clarification of the nature of filterable bacteria and of the interdependence between bacteria and viruses. Sources of the data used by the author are not given.

211T78

CA

II H

Action of strong solutions of sodium nucleinate on mozaic virus and on albumin. V. L. Ryzhkov, L. M. Tarasevich, and G. I. Loidina. *Doklady Akad. Nauk S.S.R.* 74, 10/23-4 (1950).—Strong (2.5-20%) solns. of Na nucleinate cause pptn. of the active principle of tobacco mozaic virus; activity is restored on soln. of the ppt. However, egg albumin pptd. similarly is rendered irreversibly insol. The pptn. appears to be a salting out phenomenon and no compd. formation is detected. G. M. K.

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II-D

Virus sensitivity and tobacco-mosaic virus accumulation  
on leaf at various growth stages. V. I. Ryshkov and G. I.  
Lukhina (Microbiol. Inst., Acad. Sci., Moscow). *Mikro-  
biologiya* 20, 619-21 (1951).—Virus sensitivity of *Nicotiana*  
glauca varies with height on the plant. Topping and  
treatment with 2,4-D are helpful. On the plant sensitivity  
varies with leaf size, age, and general condition. Of the  
plant old leaves become more sensitive than young ones.  
Sensitivity has no apparent relation to total or protein N  
or to total P. Leaves without nourishment (off the plant)  
appear as sensitive as well-nourished leaves on the plant.  
Julian F. Smith

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RYZHKO<sup>V</sup>, V. L.

RYZHKO<sup>V</sup>, V. L. "Electron Microscopy of Pre-cell Forms of Life," Priroda, vol. 40,  
no. 9, 1951, pp. 48-52, 410 P933

SO: SIRA SI-90-53, 15 Dec. 1953

OTRSPL Vol. 5-No. 1 Jan. 1952

Pavlov, V. I., Some morphological and chemical peculiarities of the nucleus of cells in  
*Urticariae* after Ehrh. and other toxins, 36:25

or Physiology

Akademija Nauk, S.S.R., Doklady Vol. 78, No. 2, 1951

CA

Effect of amino acids and related substances on reproduction of tobacco-mosaic virus. V. L. Ryzhkov. Doklady Akad. Nauk S.S.R. 80, 677-0(1951).—Alanine, histidine, glutamic acid, norleucine can repress the propagation of the virus and the necrotic effect caused by it in the plant. Histidine and methionine which are not part of the amino acid complement of the virus have comparatively feeble effects, but norleucine and taurine which are also absent in the virus are the most active inhibitors. *p*-Aminobenzoic acid, arginine, aspartic acid, glycine, leucine, lysine, pantoyltaurine, proline, tyrosine, threonine, tryptophan, phenylalanine, phenylglycine, and cysteine display considerable inhibition of which cysteine, lysine, threonine, aspartic and glutamic acids appear to be most effective. G. M. K.

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RYZHKOY, V. L.

"The scientific heritage of D.I. Ivanovskiy," A collection of articles in memoriam  
of D.I. Ivanovskiy (Sborik Pamyati D.I. Ivanovskogo,), published by AN SSSR,  
p 22, 1952.

RIZHKOV, V.L.

D. I. Ivanovskii, the originator of the theory of viruses; on the 60th anniversary of the discovery of viruses. Mikrobiol. zhurn. 14 no.3:91-94 '52.  
(MIRA 6:11)

1. Z Instituta mikrobiologii Akademii nauk SSSR m. Moskva.  
(Ivanovskii, Dmitrii Losifovich, 1864-1920)

234T1

USSR/Biology - Microbiology, Plant  
Diseases

1 Sep 52

"Interaction of Albumin and the Virus of Tobacco Mosaic Disease With Adenylic Acid and Nucleic Acids," V. L. Ryzhikov, Corr Mem, Acad Sci USSR, G. I. Loydina, Inst of Microbiol, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 181-184.

Describes expts which show that yeast nucleic acid and thymonucleic acid suppress the activity of tobacco mosaic disease virus, while adenylic acid under certain conditions increases

234T1

that activity. To study the physicochem relationships which govern the biol phenomena in question, carried out expts on the interaction between egg albumin and nucleic acids. Established that the acids act on the virus and do not affect the sensitivity of the tobacco plant to the virus.

234T1

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RYZHKOY, V. L.

RYZHKOY, V. L. "SYStematics of Viruses in Contemporary Literature," Mikrobiologija,  
vol. 21, no. 4, 1952, pp. 458-476. 448.3 M582

SO: SIRA SI-90-53, 15 Dec. 1953

RYZHKO<sup>V</sup>, V. L.,

RYZHKO<sup>V</sup>, V. L., and MARCENKO, N. K. "Effect of Inhibitors of Nucleinic Metabolism on the Propagation of Tobacco Mosaic Virus," Doklady Akademii Nauk SSSR, vol. 86, 1952, pp. 637-639. 511 P444A

SO: SIRA SI-90-53, 15 Dec. 1953

"APPROVED FOR RELEASE: Thursday, September 26, 2002

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RYZHKO<sup>V.</sup>, V. L.

IVANOVSKIY, Dmitriy Iosifovich, 1864-1920, RYZHKOV, V.L., redaktor.

[Selected works] Izbrannye proizvedeniia. Red. posleslovia i  
primechaniia V.L. Ryzhkova. Moskva, Gos. Izd-vo med. lit-ry, 1953.  
(MIRA 7:7)  
182 p.

(Mosaic disease) (Ivanovskii, Dmitrii Iosifovich, 1864-1920)

21 Aug 53

USSR/Medicine - Microbiology,  
Bacteriophage

"The Suppression of Phage by Some Aminoacids, V. I.  
Ryzhkov, Corr Mem Acad Sci USSR; N. K. Marchenko,  
Inst of Virology im D. I. Ivanovskiy, Acad Med Sci  
USSR

DAN SSSR, Vol 91, No 6, pp 1389-1392

Expts showed that Glycine, L-tyrosine, racemic alanine, phenylalanine, arginine, methionine, serine, proline, threonine, leucine, norleucine, and D-leucine do not suppress multiplication of phages counteracting Str. lactis and Staph. aureus, while

269T32

natural glutamic acid, D,L-cysteine, D,L-histidine, and D,L-aspartic acid do. The action of substances which counteract the inhibiting effect of aminoacids on phagolysis was investigated, i. e., the action of dinitrophenol, methionine, choline, betaine, and NaOOCCH<sub>3</sub>.

269T32

RYZHKO<sup>3</sup>, V. L.

Chemical Abstracts

May 25, 1954

Biological Chemistry

Interaction of mosaic disease virus of tobacco with myosin and actin. V. L. Ryzhkov and G. I. Lomidina (Inst. Microbiol., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.R.* 92, 851-3 (1953); cf. *C.A.* 42, 8271a. Pptn. by diln. with H<sub>2</sub>O of a soln. contg. the virus and myosin yields a ppt. which carries the virus activity in a complex with myosin. The complex failed to form stable threads, but treatment of the complex with adenosinetriphosphate (ATP) led to contraction similar to that of actomyosin. If myosin is treated with the virus, then with actin, and the mixt. is dild. only some 40% virus activity remains in the soln. above the resulting ppt.; reversal of the order of mixing gave the same result. Actin alone was found to be a powerful repressor of the virus in soln. Unpolymerized actin G has action similar to that of polymerized actin F. The repression of activity is strongest at pH 4.8, which is close to the actin isoelec. point. Increased concn. of KCl in the supporting soln. from 0.1 to 0.5M leads to progressive decompn. of virus-actin complex. No increase of viscosity occurs during formation of virus complex with either actin F or myosin, although in the latter case the results varied.

G. M. Kosobutskaya

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**RYZHkov, V.L.**

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

Origin of the central placenta in view of teratological data. Bot.  
zhur. 39 no.5:754-759 S-0 '54. (MLRA 7:11)  
(Botany--Morphology) (Abnormalities (Plants)) (Placenta)

APPROVED FOR RELEASE THURSDAY, SEPTEMBER 15, 1994 BY THE DEPARTMENT OF DEFENSE  
APPROVED FOR RELEASE THURSDAY, SEPTEMBER 15, 2000 BY THE CIA HOPSC-0051 3003465000  
1105 RA  
View of the subject, primarily item I - bacteriol, and some  
chem aspects.  
U.S. Info

Ryzhkov et al.  
USSR/Biology - Plant pathology

Card 1/1 Pub. 22 - 40/47

Authors : Ryzhkov, V. L.; Kabachnik, M. I., Memb. Corresp. of Acad. of Sc. USSR;  
Tarasevich, L. M.; Medved', T. Ya.; Zeytlenok, N. A.; Marchenko, N. K.;  
Vagzhanova, V. A.; Ulanova, E. F.; and Cheburkina, N. V.

Title : Biological activity of alpha-aminophosphinic acids

Periodical : Dok. AN SSSR 98/5, 849-852, Oct 11, 1954

Abstract : The biological activity of alpha-aminophosphinic acids (toxic when in large concentrations), is discussed. The biological activity of these acids is best expressed in the inhibition of virus multiplication in the mosaic disease of tobacco. The effect of these acids and glycol on the titer of influenza virus in growing chicken embryos was investigated and the results are described. Eleven references: 7-USSR; 2-USA; 1-French and 1-German (1930-1953). Tables.

Institution : Acad. of Sc. USSR, Institute of Elementary-Organic Compounds and the Academy of Medical Sciences USSR, The D. I. Ivanov Institute of Virusology

Submitted : July 7, 1954

USSR/ Biology - Virusology

Card 1/1 : Pub. 22 - 41/44

Authors : Ryzhkov, V. L., Memb. Corresp. of Acad. of Sc. USSR.; and Marchenko, N. K.

Title : Effect of certain metabolites on the multiplication of the mosaic disease viruses of tobacco

Periodical : Dok. AN SSSR 98/6, 1033-1036, October 21, 1954

Abstract : The effect of certain metabolites on the multiplication of mosaic disease viruses of tobacco leaves is discussed. Fourteen references: 8-USA; 5-USSR and 1-German (1938-1952). Tables.

Institution : Academy of Medical Sciences USSR, The D. I. Ivanovskiy Institute of Virusology

Submitted : July 7, 1954

Card 1/1 Pub. 22 - 33/40

Authors : Ryzhkov, V. L., Memb. Corres. of Acad. of Sc. USSR.; and Loydina, G. I.

Title : Spreading of the mosaic virus disease in isolated tobacco leaves

Periodical : Dok. AN SSSR 99/3, 459-462, Nov 21, 1954

Abstract : Material, pertaining to the relation between the confined and free mosaic disease viruses during their multiplication in tobacco leaves, is published. The method of determining the titer of the virus is described. The relation between the free and confined virus and leaf fibers is explained. Ten references: 5-USA; 3-USSR; 1-English and 1-Italian (1940-1954). Graphs.

Institution: Academy of Sciences USSR, Institute of Microbiology

Submitted: September 2, 1954

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CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKO<sup>V</sup>, V. L.

"Isotopes in the Study of Phytopathogenic Viruses," edited by A. A. Imshenetskiy,  
Corresponding Member, Academy of Medical Sciences USSR, Moscow, Publishing House of  
the Academy of Sciences USSR, 1955, 239 pp

Sum 1467

RYZHKOV, V.L., Member Correspondent of USSR Academy of Sciences

"Problems of Specific Albumin (protein) formation in virology and  
Microbiology"

Report given at jubilee held on June 20-21, 1955 in honor of 25<sup>th</sup>  
anniversary of foundation of Inst of Microbiology, AS USSR

Ryzanov  
✓ A hypothesis on the nature of virus particles. V. L. Ryshkov. *Zhur. Obshch. Biol.* 10, 238-47 (1955).—Virus particles can be considered as virosomes on the basis of the following factual considerations: (1) structural properties of virus particles, namely, the existence of protective protein membranes; (2) the position of virus particles in the cycle of virus development; (3) stability of virus particles; (4) absence of respiration and of biochemical activity of virus particles *in vitro*; (5) preservation of activity and absence of alterations in the progeny of virus particles after benzoylation, acetylation, etc.; (6) nondetectability of nucleic acids in viruses by staining dyes; (7) apparent inertness of virus particles not only *in vitro* but also inside the cells after the cycle of virus development is completed. J. A. Steinl.

Ryzhkov, V. L.

USSR/ Medicine - Virusology

Card 1/1 : Pub. 86 - 3/39

Authors : Ryzhkov, V. L., Mem. Corresp. Acad. Sc., USSR

Title : The physiology of viruses

Periodical : Priroda 44/3 32 - 36, Mar 1955

Abstract : The fact that scientists have not been able to maintain viruses alive in artificial cultures for the purpose of observing their multiplication and growth and that they are only known to exist in living tissue is taken as a starting point for observing the characteristics of viruses through indirect means. The wide variation in the number of viruses in different tissues is noted, as well as the nondependence of their harmful effect on their numbers, which is also found not to result from the withdrawal of substance from the host tissue. The chemical composition of viruses themselves is studied.

Institution : .....

Submitted : .....

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FIELDS, P., ed.; HEMINGWAY, V., ed.; TARASEVICH, L.M.[translator];  
TEREKHOVA, N.A. [translator]; RYZHKOV, V.L., redaktor; ENDEN, M.G.,  
redaktor; GERASIMOVA, Ye.S., tekhnicheskiy redaktor

[The nature of virus multiplication. Translated from the English]  
Priroda razmnozheniya virusov. Sost. gruppoi avtorov. Perevod s  
angliiskogo L.M.Tarasevich i N.A.Terekhovoi. Pod red. is predst.  
V.L.Ryzhkova. Moskva, Izd-vo inostrannoi lit-ry, 1956. 390 p.

(MIRA 9:?)

1. Chlen-korrespondent AN SSSR (for Ryzhkov)  
(VIHUSES)

RYZHKOV, V.I.; MARCHENKO, N.K.

Problem of the ontogenesis fo tobacco mosaic virus. Vop.virus. 1  
no.1:45-48 Ja-F '56.

(MLRA 10:1)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.  
(VIRUSMS,  
tobacco mosaic virus, ontogenesis (Rus))

"Hybridization of Bacteria and Viruses," a report discussed at one of six meetings of the Virological Section, Moscow Dept. All-Union Society of Microbiologists, Epidemiologists, and Infectionists imeni I. I. Mechnikov in 1955. *Voprosy Virusologii*, 1, No 2, 1956

Sum. 1003, 20 Jul 56

USSR / Virology. General Problems.

E-1

Abs Jour: Referat Zh. Biol., No 6, 25 March, 1957, 21664

Author : Rizhkov, V.L.

Inst : not given

Title : Ontogenesis of Viruses.

Orig Pub: Vopr. virusologiy, 1956, No 2, 5-9

**Abstract:** A critical review. Current data are given on the fine structure of phage particles, of turnip mosaic viruses, of tobacco mosaic and small pox viruses, indicating that virus particles are not a "structureless substance" or a protein molecule, but consist of an envelope and contents which consists of nucleic acid "by the functioning of which one can assume a large variety of finest structures." Discussing the cycle of virus development, the author concludes that the inability to isolate the virus in the vegetative phase is evidently due to its extreme lability at this period (nucleic acid threads). The statement that the so-called unfulfilled virus and particles devoid of nucleic acid (inert protein

Card : 1/2

-1-

USSR / Virology. General Problems.

E-1

Abs Jour: Referat Zh. Biol., No 6, 25 March, 1957, 21664

of tobacco mosaic virus, "shade" of phage particles) manifest earlier stages of development, is questioned. The author emphasizes that at the time the virus multiplies, there results a separation daughter threads of nucleic acid, which indicates material succession of virus generations. The free virus particles the author names "virospores." The author portrays his concept of the reproductive process of viruses as follows: in interaction with the sensitive master cells, the virus particles are freed from envelopes and penetrate into the cell in the form of slender nucleic acid threads, most probably connected with small amounts of protein. During virus multiplication, the quantity of nucleic acid threads is increased. This process is closely related to formation of protein envelopes. The virus particles without nucleic acid (empty ones) possibly form in cases when cells lack resources for synthesis of the virus nucleic acid. Bibl. 30 refs.

Card : 2/2

-2-

RYZHKOV, V.L.; SOLOV'YEV, V.D.

"Virus and rickettsial infections in man" [in English]. Reviewed by  
V.L.Ryzhkov, V.D.Solov'yev. Vop.virus. 1 no.2:58-59 Mr-Ap '56.  
(VIRUS DISEASES)  
(RICKETTSIAL DISEASES)

Ryzhkov, V.

Physiology of viruses and immunity against virus diseases. Tr. from  
the Russian. P. 138  
CESKOSLOVENSKA BIOLOGIE. (Ceskoslovenska akademie ved. Biologicky  
ustav) Praha  
Vol. 5, no. 3, May 1956

Source: EERL - LC Vol. 5, No. 10 Oct. 1956

Ryzhkov, V.L.

USSR/General Section - General Problems, Philosophy, Methodology A-1

Abs Jour : Referat Zhurn. Biol. No 16, 25 Aug, 1957, 67798

Author : Ryzhkov, V.L.  
Title : Anti-Metabolite Methods in Biology.

Orig Pub : Priroda, 1956, No 12, 20-26

Abstract : An outline of the current study on anti-metabolites, included in the metabolism of substances and playing an important role in the physiology of simple and complex organisms. Examples are given from the fields of virology, microbiology, physiology and animal pathology.

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RYZHKOY, V.L.

First crystallographic work on viruses. Mikrobiologija 25 no.1:  
125-127 Ja-F '56  
(MLRA 9:5)

(VIRUSES,  
crystallography, hist.(Rus))

*Ryzhkov, VL*  
USSR/ Biology - Microbiology

Card 1/1 Pub. 124 - 28/28

Authors : Ryzhkov, V. L., Memb. Corresp., Acad. of Sc., USSR

Title : Perspectives in the development of microbiology

Periodical : Vest. AN SSSR 26/1, 123-126, Jan 1956

Abstract : In a letter addressed to the editor of the periodical, "Vestnik Akademii Nauk SSSR." (Herald of the Academy of Sciences USSR), the author expresses personal views regarding the perspectives for the development of microbiology in the USSR.

Institution : .....

Submitted : .....

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CIA-RDP86-00513R001446520017-1  
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RYZHKOV, V.L. (Moskva)

Basic concepts in genetics. Bot.zhur.41 no.2:193-205 P '56.  
(Genetics) (MIRA 9:?)

RYZHKOY, V.L.

Problems of general biology in the "Bel'shaja sovetskaja entsiklopedija."  
Bet. zhur. 41 no. 7:1038-1042 Jl '56. (MIRA 9:10)  
(Biology)

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RIZHAU, V. L.

"Physiologische Bedingungen der Virenvermehrung,"

paper submitted to the Intl. Commission on Phytopharmacy, 4th Intl.  
Congress of Crop Protection, Hamburg, GFR, 8-15 Sept 1957.

"Some Peculiarities of the Action of Preparations That Suppress Development of Viruses,"

p. 118 Ministry of Health USSR Proceedings of the Second All-Union Conference on Antibiotics, 31 May - 9 June 1957. pp. 405, Moscow, Medgiz, 1957.

R.Y.L.  
R.Y.L.  
"Viruses of Bacteria (Bacteriophages)," by V. L. Ryzhkov,  
Voprosy Virusologii, Vol 2, No 1, Jan/Feb 57, pp 4-8

A survey article devoted to recent developments in bacteriophage study deals with such subjects as the role of bacteriophage in the classification of bacteria, the modifiability of microorganisms, the study of general virology, and the participation of nucleic acids in the synthesis of macromolecules, etc. Thirty-three references are given of which 12 are Russian. The article refers to four collected works (by Soviet authors) devoted to the subject of bacteriophage (1955-1956). Facts accumulated since the publication of these four works included.

The average bacteriophage is described according to the observations of several investigators. The article states that the head of a phage observed under the electron microscope ranges in size from 40 to 100 millimicrons, and the tail, from 100 to 150 millimicrons. Difficulties connected with interpretation of the electronoscopic picture are pointed out. The behavior of phages under a variety of conditions are discussed. Remarks are included on the effect of osmotic shock on the phage membrane, the characteristics, functions, and antigenic properties of which are mentioned. The work deals with interaction of phages and bacteria, adsorption of phage by bacteria, latent period of phage replication, maturing of phage particles, and their liberation from bacteria. It is noted that bacteriophage has enzymatic activity with regard to the substrate with which it reacts.

Sum. 1322

The article deals at length with the effects of bacteriophage on the bacterial cell and the methods by which these effects are studied. It mentions that the chemical content of the phage differs from that of the bacterial cell in which it resides. It considers that the mechanism of phage replication has wider application for studying self-propagation of separate elements of the living organism and cites the use of radioactive phosphorus to demonstrate this mechanism. The phenomenon of antagonism is touched upon.

The article discusses differences between related phages and includes description of form, size, transparency of related colonies, and capability or inability to infect various strains of bacteria. Forms known as "re-combinants" are mentioned. Phage-resistance, secondary cultures of bacteria which have lost the capacity to adsorb phage, phage-carrying, lysogenicity and methods of study, mechanisms by which phage parasitizes bacteria, and factors which disturb the lysogenic system of the phage are reviewed.

Scum. 1322

RYZHAYEV

Factors which bring about modification of bacteria are noted, and new strains of bacteria which arise as a result of phage action are mentioned. The article mentions the theory of transduction, i.e., the capacity of phage to pass on to a bacterial cell certain characteristics of the bacterial cell of a different strain in which it previously resided. Two types of phage modifiability are given: that involving the protein membrane and that occurring in filaments of nucleic acid. The latter process is also broken down into two categories.

The article expresses regret that much data concerning the chemical content structure and physiology of bacteriophage is ignored by some investigators. The following facts are presented as outstanding in consideration of the fact that bacterial viruses cause phagolysis: phage produces a noxious effect on bacteria; some bacteria can be infected by different phages; phage has a structure and type of development inherent in other viruses; phage has a chemical composition and antigens which are qualitatively different from bacteria; and the interrelationship of phages and bacteria is similar to the interrelationship of other viruses with multicellular hosts. It is concluded that the differences observed depend either on differences between unicellular and multicellular organisms or on the innate specific properties of every virus. (U)

Scam. 1322

RYZHKOY, V.L.

Metabolites and antimetabolites in a study of the multiplication of  
tobacco mosaic virus. Izv. AN SSSR Ser.biol. 22 no.1:41-54 Ja-F '57.

1. Institut virusologii im. D.I. Ivanovskogo Akademii meditsinskikh  
nauk SSSR.

(MOSAIC DISEASE) (VIRUSES)

USSR/Virology. Plant Viruses

E

Abs Jour : Ref Zhur-Biol., No 13, 1958, 57333

Author : Ryzhkov, V. I., Marchenko N. K.

Inst : Not given

Title : Effect of Cations of Some Metals on the Reproduction of the Viruses of Tobacco Mosaic Disease (BTM).

Orig pub Mikrobiologiya, 1957, 25, No 3, 380-385

Abstract : Of the metals investigated the least toxic are K, Na, Mg, Ca, Mo, Mn; moderately toxic are Li, Zn, Fe, most toxic are Cu, Co, and In. Most of the tested metallic salts depress the reproduction of BTM in isolated tobacco leaves. Na and Ca do not depress the reproduction of BTM. The depressing effect of Mg is nullified by the equimolar concentration of  $\text{Ca}^{++}$ . The toxicity

Card 1/2

COUNTRY : USSR  
CATEGORY : Plant Physiology. Pathophysiology.  
ABS. JOUR. : RZhBiol., No. 5; 1959, No. 19999  
AUTHOR : Ryzhkov, V.I.; Terekhova, N.A.  
INST. : AS USSR  
TITLE : Mucopolysaccharide in Leaves of *Abutilon* sp.  
ORIG. PUB. : Dokl. AN USSR, 1957, 117, No.2, 341-344  
ABSTRACT : A study of mucopolysaccharides (M) in the leaves of healthy and chlorotic *Abutilon striatum* plants was made at the Institute of Microbiology of the Academy of Sciences USSR. Healthy *Abutilon pictum* plants were also studied. By qualitative tests it was determined that the acid M contains amino-sugar and uronic acids. M is found in special parenchyma cells of the leaf veins and in its epidermis. The veins of *A. striatum* are richer in mucilage than the pith;  
PAGE: 1/2

Ryzhkov V.L.  
AUTEORS: Ryzhkov, V. L., Corresponding Member of the 20-3-46/52  
AN USSR, and Marchenko, N. K.

TITLE: Effect of the Sulfanylamine on the Multiplication of  
Tobacco Mosaic Virus (Vliyaniye sul'fanilamida na  
razmnozheniye virusa mozaichnoy bolezni tabaka).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 3, pp. 523-525 (USSR)

ABSTRACT: At an earlier date it was demonstrated, that the aminopterine which is an antimetabolitic substance and analogue to the folic acid, suppresses the multiplication of the virus of the mosaic disease of the tobacco (in the following referred to as VMT). The folic acid, on the other hand, has been considered to be stimulating the multiplication of the VMT. In this work the authors study the effect of the sulfanylamine of the paraamino benzoin acid and of the paraamino salicylic acid upon the propagation of the VMT. Tab. 1 illustrates the results of a successful application of the sulfanylamine in a concentration of 0,02 M. The question arose, whether this reaction has been the result of a toxic effect on the plant tissue at the inoculation point. For, as it is known, the virus don't propagate on a dead tissue. There is no doubt,

Card 1/3

Effect of the Sulfanylamide on the Multiplication of  
Tobacco Mosaic Virus

20-3-46/52

that the sulfanylamide prevents the propagation of the VMT as a result of the specific effect on the fermentative system, under the assistance of the folic acid. The higher plants synthesize themselves the folic acid, and this synthesis is disturbed by the presence of the sulfanylamide. At presence of the sulfanylamide the plant tissued synthesize an amount of folic acid not sufficient for the virus, which prevents the propagation of the VMT. It has been proved, that at an administration of folic acid from without the sulfanylamide is not able to prevent the propagation of the VMT. The authors set up the hypothesis, that the fermentative system of the synthesis of the ribonuclein acid and the timonuclein acid depends likewise on the derivatives of the folic acid, but, however, differ from each other. This has been demonstrated also on animal tissues.

There are 1 table, and 4 references, 2 of which are Slavic.

Card 2/3

Effect of the Sulfanylamide on the Multiplication  
of Tobacco Mosaic Virus

ASSOCIATION: Institute for Virusology imeni D. I. Ivanovskiy, Academy  
of Medicine, USSR (Institut virusologii im. D. I. Ivanovskogo,  
Akademii meditsinskikh nauk SSSR)

SUBMITTED: July 12, 1957

AVAILABLE: Library of Congress

Card 3/3

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKOV, V. L

"The Effect of Metabolites and of Anti-Metabolites upon reproduction of the  
Tobacco Mosaic Virus"

report submitted for the International Congress for Microbiology, Stockholm, Sweden,  
4-9 Aug 1958.

COUNTRY : USSR  
CATEGORY : Virology, Plant Viruses E  
AEG. JOUR. : RZhBiol., No. 1959, No. 9881  
AUTHOR : Ryzhkov, L. A.; Marchenko, N. K.  
INST. :  
TITLE : The Effect of Metabolites on the Multiplication of  
Tobacco Mosaic Disease Virus in Leaves of Tobacco of  
the Ambolema Variety Resistant to the Virus  
ORIG. PUB. : Vopr. virusologii, 1958, No 1, 20-23  
ABSTRACT : Tobacco of the Ambolema variety is distinguished by a  
very low susceptibility to the tobacco mosaic virus.  
The authors have suggested that in tissues of this  
variety there are either special substances preventing  
the multiplication of the virus or there is a deficiency  
in metabolites. The second supposition was amplified.  
A study was made of the effect of a number of  
compounds on the multiplication of the virus in  
tobacco plants of the Samsun and Ambolema varieties.  
Certain metabolites stimulated the multiplication of the

Card:

1/2

RYZHKOV, V. L.

Formation of specific proteins in virusology and microbiology.  
Trudy Inst. mikrobiol. no.5:236-251 '58 (MIRA 11:6)

1. Institut mikrobiologii AN SSSR.  
(PROTEINS, metabolism,  
micro-organisms, review (Rus)  
(MICROORGANISMS, metabolism  
proteins, review (Rus))

KOSYAKOV, P.N., red.; RYZHKOV, V.L., red.; TARASEVICH, L.M., red.;  
ROVNOVA, Z.I., red.; BUL'DYAYEV, N.A., tekhn.red.

[Physiology and biochemistry of viruses] Fiziologiya i bio-  
khimiia virusov. Pod red. P.N.Kosiakova, V.L.Ryzhkova i L.M.  
Tarasevich. Moskva, Gos.izd-vo med.lit-ry, 1959. 184 p.  
(MIRA 13:7)

1. Akademiya meditsinskikh nauk SSSR, Moscow. Institut viruso-  
logii.

(VIRUSES)

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

PETROV, Dmitriy Fedorovich; RYZHKOV, Vitaliy Leonidovich, red.

[Selection of microbes] Seleksiia mikrobov. Moskva, Medgiz,  
1959. 276 p. (MIRA 13:9)  
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

RYZHKOY, V.L.

Nitrogen uptake of viruses. Vop.virus. 4 no.3:259-265  
My-Je '59. (MIRA 12:8)

(NITROGEN, metab.  
viruses, review (Rus))  
(VIRUSES, metab.  
nitrogen, review (Rus))

PROTSENKO, A.Ye.; LEGUNKOVA, R.M.; RYZHKOV, V.L., otv.red.; PASHKOVSKIY,  
Yu.A., red.izd-va; BRUZZGUL', V.V., tekhn.red.

[Photomicrography of phytopathogenic viruses with an electron  
microscope] Elektronnaia mikrofotografiia fitopatogenykh virusov.  
Moskva, Izd-vo Akad.nauk SSSR, 1960. 94 p.

(MIRA 13:11)

1. Chlen-korrespondent AN SSSR (for Ryzhkov).  
(PHOTOMICROGRAPHY) (ELECTRON MICROSCOPY)  
(VIRUSES)

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKO<sup>V</sup>, V.L.

So-called infectious heredity in bacteria. Vop.virus. 6 no.5:515-  
520 S-0 '60. (MIRA 14:7)

(BACTERIA)

RYZHKOY, V.L.

*Phytooncology. Priroda* 49 no.7:31-38 Jl '60.  
(MIRA 13:7)

1. Chlen-korrespondent Akademii nauk SSSR.  
(Tumors, Plant)

RYZHKOVA, V.L.; TEREKHOVA, N.A.; LOYDINA, G.I.

Causes of the resistance of the Ambalema tobacco variety to the  
mosaic virus. Dokl. AN SSSR 134 no.6:1453-1456 O '60.

(MIRA 13:10)

1. Chlen-korrespondent AN SSSR (for Ryzhkov).  
(TOBACCO—DISEASE AND PEST RESISTANCE) (MOSAIC DISEASE)

RYZHKO<sup>V</sup>, V.L.

Brief outline of the history of virus research. Trudy Inst. ist.  
est. i tekhn. 36:315-325 '61. (MIRA 14:9)  
(VIRUS RESEARCH)

RYZHKO<sup>V</sup>, V.L.

Physiology of viruses and chemotherapy of virus diseases.  
Vest. AN SSSR 31 no.8:59-63 Ag '61. (MIRA 14:8)

1. Chlen-korrespondent AN SSSR.  
(HEMOTHERAPY)  
(VIRUS DISEASES)

RYZHKOV, V.L.

Ultramicrobes. Priroda 50 no. 2:31-38 F '61. (MIRA 14:2)

1. Chlen-korrespondent AN SSSR.  
(Pleuropneumonialike organisms)

RYZHKOV, V.L.

Polypliody and the quantitative-qualitative relations in genetics.  
Trudy MCIP., Otd.biol. 5:33-38 '62. (MIRA 16:5)

1. Institut mikrobiologii AN SSSR, Moskva.  
(POLYPLOIDY)

RYZHKOV, V.L.

Preformation and epigenesis in the development of viruses. Vop.  
virus. 7 no. 5:515-519 S-0 '62. (MIRA 15:11)

1. Institut mikrobiologii AN SSSR, Moskva.  
(VIRUSES)

RYZHKOV, V.L.

Viral physiology in comparative pharmacology. Izv.AN SSSR.biol. 27  
no.4:530-543 Jl-Ag '62. (MIRA 15:9)

1. Institute of Microbiology Academy of Sciences of the U.S.S.R.,  
Moscow.

(VIRUS RESEARCH) (PHARMACOLOGY) (PURINES)

RYZHKO<sup>V</sup>, V.L.

Let's begin with the signs of life. Nauka i zhizn' 29 no.4:7-8  
Ap '62. (MIRA 15:7)

1. Chlen-korrespondent AN SSSR.  
(VIRUSES)

RYZHKOV, V. L.

Paradoxes of adaptation. Priroda 51 no.2:33-39 F '62.  
(MIRA 15:2)

1. Chlen-korrespondent AN SSSR.  
(ADAPTATION(BIOLOGY))

RYZHKOv, V.L.

Diseases of bacteria. Priroda 52 no.6:34-41 '63. (MIRA 16:6)

1. Institut mikrobiologii AN SSSR, Moskva; chlen-korrespondent AN SSSR.  
(Bacteriology)

GEYCHENKO, V.V. [Heichenko, V.V.]; RIZHKOV, V.I.

Theory of ordering in alloys with a face-centered cubic lattice.  
Ukr. fiz. zhur. 8 no.11:1223-1233 N '64. (MIRA 17:9)

1. Institute metallofiziki AN UkrSSR, Kiyev.

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

GEYCHENKO, V.V.; RYZHKOV, V.I.

Theory of the ordering of alloys with a hexagonal close-packed  
lattice. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.18:  
155-162 '64 (MIRA 17:8)

DANILOV, I.S.; RYZHKOV, V.I.; ANISIMOV, M.G.; KUROCHKIN, V.D., red.

[Arabic-Russian and Russian-Arabic military dictionary]  
Arabsko-russkii i russko-arabskii voennyi slovar'. Moskva,  
Voenizdat, 1965. 704 p. (MIRA 18:9)

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

**RYZHKOY, V.I.; SMIRNOV, A.A.**

Effect of pressure on the ordering of alloys. Fiz.met. i metalloved.  
18 no.5:670-677 N '64. (MIRA 18:4)

1. Institut metallofiziki AN UkrSSR.

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKOV, V.I.

Theory of the ordering of binary alloys with a body-centered  
cubic lattice having interstitial atoms of a third element.  
Sbor. nauch. trud. Inst. metallofiz. AN URSR no.20:133-147  
'64. (MIRA 18:5)

L 25809-66 EWT(1)/EWT(m)/T RM/JK

ACC NR: APG015927

SOURCE CODE: UR/0216/65/000/004/0533/0541

32  
B

AUTHOR: Ryzhkov, V. L.

ORG: Institute of Microbiology, AN SSSR, Moscow (Institut mikrobiologii AN SSSR)

TITLE: Biological memory and nucleic acids

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 4, 1965, 533-541

TOPIC TAGS: nucleic acid, RNA, neuron, genetics

ABSTRACT: The author challenges Hyden's memory theory, which regards the process of remembering as related to change in the sequence of nucleotides in RNA, i.e., a process similar to mutation, brought about by nervous excitation. The author then advances the hypothesis that the process of memory is based on the spiralization of various portions of neuron chromosomes resulting in a change in the ratio of calcium to sodium ions under the influence of nervous excitation.

The memory code is reflected in the alternation of spiralized (inactive) and nonspiralized regions. The spirals of individual chromosome regions may be more or less permanently fixed by means of histones and bivalent metals.

The author assumes that cell differentiation during embryonic development, elaboration of immunity, participation of chromosomes in various

UDC: 547.963.3

Card 1/2

L 25809-66

ACC NR: AP6015927

functions of the organism (e.g., muscle contraction), and the process of remembering are all related at the cell level to chromosome activity. While the author's hypothesis is based on indirect experimental evidence, e.g., observations on giant chromosomes, it has the advantage of reducing memory to some simple and universal processes such as spiralization of chromosomes. [JPRS]

SUB CODE: 06 / SUBM DATE: 15Mar64 / ORIG REF: 001 / OTH REF: 016

Card 2/2 CC

RYZHKOVA, V.L.; TEREKHOVA, N.A.

Reproduction of tobacco mosaic virus in tumors of Nicotiana tabacum and Nicotiana glutinosa following intraspecific grafting. Vop. virus. 10 no. 6:678-680 N-D '65 (MIRA 19:1)

1. Institut mikrobiologii AN SSSR, Moskva. Submitted August 7, 1965.

ACC NR: AP6017763

SOURCE CODE: UR/0221/65/059/003/0385/0398

-2 /

B

AUTHOR: Ryzhkov, V. L. (Moscow)

ORG: none

TITLE: Symbiosis at the molecular level

SOURCE: Uspekhi sovremennoy biologii, v. 59, no. 3, 1965, 385-398

TOPIC TAGS: biology, bacteria, bacteriology, entomology, protozoology

ABSTRACT: This review article covers Soviet literature up to 1963 and the foreign literature up to 1964. The author divides his article into four parts: Bacteria, Paramecia, Arthropoda, and Higher Organisms. The discussion is focused on the misunderstandings and questionable points arising in connection with the difficulties of distinguishing the cell's own elements from the exogenic life forms at the macromolecular level. He suggests that truth is after all concrete even with respect to the role of symbiosis in evolution and finds that various authors have resorted to generalizations which are too broad and not well-grounded. [JPRS]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 008 / OTH REF: 062

Card 1/1. 10

FYZHKOV, V.L.

Dmitrii Iosifovich Ivanovskii within the circle of his contemporaries.  
Izv. AN SSSR. Ser. biol. no.2:293-297 Mr-Ap '65.

(MIRA 18:4)

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKO<sup>V</sup>, V.L.

Molecular basis of memory. Priroda 54 no.7:2-10 Jl '65.

(MIRA 18:7)

1. Chlen-korrespondent AN SSSR.

"D. I. Ivanovskiy v Krugih Svoikh Sovremennikov."

report presented at Symp on Virus Diseases, Moscow, 6-9 Oct 64.

Institut mikrobiologii AN SSSR, Moskva.

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKOY, V.L. (Moskva)

Deformation of flower caused by virus diseases of petunia and  
some other plants. Bot. zhur. 49 no.1:100-105 Ja '64.(MIRA 17:2)

AMBARTSUMYAN, V.A., akademik; ASRATYAN, E.A.; BOGOLYUBOV, N.N., akademik; VINOGRADOV, A.P., akademik; GINETSINSKIY, A.G.; KHNUNYANTS, I.L., akademik; KOCHETKOV, N.K.; KURSANOV, A.L., akademik; MEL'NIKOV, O.A.; NESMEYANOV, A.N., akademik; NESMEYANOV, An.N., doktor khim. nauk; OREIMOV, I.V., akademik; POLIVANOV, M.K., kand.fiz.-mat.nauk; REUTOV, O.A.; RYZHKOV, V.L.; SPITSIN, V.I., akademik; TAMM, I.Ye., akademik; FESENKO, V.G., akademik; FOK, V.A., akademik; SHCHERBAKOV, D.I., akademik; FRANK, I.M.; FRANK, G.M.; KHOKHLOV, A.S., doktor khim. nauk; SHEMYAKIN, M.M., akademik; ENGEL'GARDT, V.A., akademik; SHAPOSHNIKOV, V.N., akademik; BOYARSKIY, V.A.; LIKHTENSTEYN, Ye.S.; VYAZEMTSEVA, V.N., red.izd-va; KLYAYS, Ye.M., red.izd-va; TARASENKO, V.M., red.izd-va; POLYAKOVA, T.V., tekhn. red.

[As seen by a scientist: From the Earth to galaxies, To the atomic nucleus, From the atom to the molecule, From the molecule to the organism] Glazami uchenogo: Ot Zemli do galaktik, K iadru atoma domolekuly, Ot molekuly do organizma. Moskva, Izd-vo AN SSSR, 1963. 736 p. (MIRA 16:12)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Asratyan, Ginetsinskiy, Kochetkov, Mel'nikov, Reutov, Ryzhkov, Frank, I.M., Frank, G.M.)  
(Astronomy) (Nuclear physics) (Chemistry) (Biology)

RYZHKO<sup>V</sup>, V.L.

Biological memory and nucleic acids. Izv. AN SSSR. Ser. biol. no.4:  
533-541 Jl-4g '65. (MIRA 18:7)

1. Institut mikrobiologii AN SSSR.

RYZHKOV, V.I.

Plastids as mutating units. Dokl. AN SSSR 162 no.5:1177-1180 Je '65.  
(MIRA 18:7)

1. Institut mikrobiologii AN SSSR; chlen-korrespondent AN SSSR.

AUTHOR: Amirkhanov, B. F.; Ryzhkov, V. M.

ORG: none

TITLE: Narrowing the magnetic resonance line in a helium magnetometer

30

28

B+1

10

SOURCE: USSR. Gosudarstvennyy geologicheskiy komitet. Osnovye konstruktorskoye byuro. Geofizicheskaya apparatura, no. 26, 1965, 20-25

TOPIC TAGS: magnetometer, helium magnetometer

ABSTRACT: The width of the resonance line in a helium magnetometer was measured during a pulsed discharge in the absorbing cell. The measurements were conducted by reducing the rf field amplitude to a level at which the width of the observed signal was practically independent of the saturation factor. A further reduction in the line width requires a decreased optical width, which is obtained by lowering the intensity of the light source. However, in this case the signal strength is also affected. It was found that during a pulsed excitation, the width of the magnetic resonance line can be reduced to  $1.2 \times 10^{-5}$  oe, i.e., almost 50 times narrower than the line width obtained with a continuous discharge. With rf broadening taken into account a line width of the order of  $3 \times 10^{-5}$  oe can be obtained. Thus, the use of a pulsed discharge eliminates the basic deficiency of the helium magnetometer, i.e., the large width of the magnetic resonance line. In comparison with rubidium and cesium magnetometers

Card 1/2

L 17015-66

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CIA-RDP86-00513R001446520017-1"

ACC NR: AT6004292

eters, which also employ pulsed excitation of the absorbing cell, the helium magnetometer possesses the following advantages: 1) a linear dependence of the resonance frequency on the magnetic field strength; 2) a high resonance frequency; and 3) the capability of normal operation at a variety of ambient temperatures. The narrow width of the magnetic resonance line in this instrument makes it practical for measuring magnetic fields in outer space. Orig. art. has: 3 figures and 1 table. [JR]

SUB CODE: 17/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 008/ ATD PRESS: 4207

Card 2/2 M/25

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKO V.M.; KITAYEV, N.N.

Instrument for registering machine performance and fuel consumption.  
Rats.i izobr.predl. v stroi. no.100:25-26 '54. (MIRA 8:10)  
(Gauges)

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R001446520017-1  
CIA-RDP86-00513R001446520017-1"

RYZHKOV, V.M.; STEPANOV, A.P.

Usability of the dynamic polarization of protons in nuclear-precession magnetometers. Geofiz. prib. no. 12:35-51 '62.  
(MIRA 17:5)

1. Ural'skiy politekhnicheskiy institut.

RYZHKOY, V.M.

Machine for drilling holes in frozen ground. Rats. i izobr. predl. v  
stroi. no.107 '55. (MIRA 9:7)  
(Frozen ground) (Boring machinery)

L 13859-66 EWT(1)/FCC

GW

ACC NR: AT6004293

(N)

SOURCE CODE: UR/3175/65/000/026/0026/0028

AUTHOR: Nedovodiyev, G. P.; Ryzhkov, V. M.

ORG: none

41  
B1

TITLE: Conditions for maximum sensitivity of a magnetometer based on optical orientation of atoms <sup>124,55</sup>

SOURCE: USSR. Gosudarstvennyy geologicheskiy komitet. Osoboye konstruktorskoye byuro. Geofizicheskaya apparatura, no. 26, 1965, 26-28

TOPIC TAGS: magnetometer, optic property, Zeeman effect, magnetic field measurement, atom

ABSTRACT: Magnetometers are presently being developed which are based on optical orientation of atoms. Magnetic resonance in the instruments, which takes place with coincidence between the frequency of the rf field and that of Zeeman transitions in the atoms, is detected from the variation in the intensity of light passing from the spectral tube through an absorption cell filled with alkali metal vapor. Formulas are given for the time characteristics of the signal at the photodetector in this type of an instrument. A formula is derived for the first harmonic

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of this signal in terms of the half-width of the magnetic resonance line for the optically oriented atoms and it is shown that the sensitivity of the magnetometer to variations in the magnetic field increases with the steepness in this harmonic at the resonance center. Expressions are given for determining the optimum parameters of the magnetometer. Orig. art. has: 1 figure, 3 formulas.

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AUTHORS: Ryzhkov, V.M., Skrotskiy, G.V. and Alimov, Yu.I.

TITLE: Phenomenological Theory of Free Precession of the Magnetic  
Moments of Atomic Nuclei

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,  
1959, Vol 2, Nr 6, pp 884 - 891 (USSR)

ABSTRACT: A discussion is given of the conditions necessary to obtain the free precession of the nuclear magnetization vector of a specimen in the Packard-Varian method (Ref 2). The Packard-Varian method consists of the following. The specimen, which has a relaxation time of the order of a second, is magnetized by a sufficiently large auxiliary field  $H_0$ , perpendicular to the weak measured field  $h_0$ . When the auxiliary field is suddenly switched off, the magnetization vector  $M$  precesses about  $h_0$  with an angular velocity  $\omega = \gamma h_0$ . The coefficient  $\gamma$  is practically equal to the gyromagnetic ratio of the nuclei under investigation. In practice, the most important cases are those in which transient processes ✓

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associated with the switching-off of the auxiliary field are damped out during a period of time which is considerably smaller than the relaxation time for the system of nuclear spins. In that case, the relation between the magnetization vector  $M$  and the field  $H$  is given by Eq (1), which describes the motion of the magnetization vector during the transient process. After the transient process is completed and when only the field  $h$  remains, the magnetization vector precesses freely, the appropriate equation being Eq (2). The latter equation was obtained in the previous paper by one of the present authors (Ref 12). When the transverse and longitudinal relaxation times are equal  $T_{\parallel} = T_{\perp} = \tau$ , the solution of Eq (2) is given by Eq (3). Such an approach to the problem enables one to consider independently the effect of the switching-off of the auxiliary field on the initial precession amplitude and

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the characteristics of the damping of the free precession signal. It is shown that when the frequency of the transient process  $\omega$  is considerably greater than the precession frequency in the measured field  $h_0$ , the

transient process has practically no effect on the initial amplitude of the precession signal even in the absence of damping. When the frequency of the transient process  $\omega$  is smaller than the precession frequency, the transient process will have no effect on the initial amplitude of the precession signal only if it is heavily damped. In particular, if the auxiliary field is aperiodic ( $\omega = 0$ ), the damping constant should be considerably greater than the precession frequency (Eq 6). A further effect considered is that of the influence of non-uniformity in the measured field on the damping of the free precession signal. Experiments on cylindrical specimens have shown that the effect of the nonuniformity in the magnetic field has a more complex nature than was

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supposed by Waters and Phillips (Ref 16). As a result of the superposition of the magnetic moments of different elements of volume in the specimen, all of which have different precession rates, additional maxima appear in the signal. The effect of non-uniformity can be neglected provided  $\gamma GR_c \tau < 1$ , where  $R_c$  is the radius of the specimen (Figure 3). For example, for a cylindrical specimen of distilled water for which the diameter is 10 cm, the relaxation time is 3 sec and

$\gamma = 2.67 \times 10^4 \text{ sec}^{-1} \text{ Oe}^{-1}$ , the non-uniformity may be neglected provided  $G$  is less than  $2.5 \times 10^{-6} \text{ Oe cm}^{-1}$ . Figure 5 shows typical free precession signals for distilled water for  $G = 6.1 \times 10^{-5}$  and  $4.2 \times 10^{-5} \text{ Oe cm}^{-1}$ , respectively. The distance between the minima in the signal was found to be in good agreement with the calculations given in Ref 16. There are 5 figures, 1 table and 19 references, 8 of which are Soviet and 11 English.

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